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Application No. 10/756,778 – Amendment filed August 18, 2005

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace prior versions and listings of claims in the application:

**Listing of claims:**

Claim 3 has been amended as follows: Underlines indicate insertions and ~~strikethrough~~ indicate deletions. Claims 16-22 are new.

Claim 1. (withdrawn) A biologically pure culture of a microorganism strain comprising all of the identifying characteristics of a *Bacillus thuringiensis* strain deposited at the International Depository Authority of Health Canada in Winnipeg under accession number IDAC010201-5, or a mutant thereof derived from said strain.

2. (withdrawn) An isolated nucleic acid molecule comprising a polynucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence in SEQ ID NO: 2;

(b) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence in SEQ ID NO: 8;

(c) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence in SEQ ID NO: 12, with the proviso that said nucleotide sequence does not encode the amino acid sequence in SEQ ID NO: 18;

(d) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence in SEQ ID NO: 13, with the proviso that said nucleotide sequence does not encode the amino acid sequence at positions 232 to 723 of SEQ ID NO: 18;

(e) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence in SEQ ID NO: 14, with the proviso that said nucleotide sequence does not encode the amino acid sequence in SEQ ID NO: 18;

(f) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence in SEQ ID NO: 15, with the proviso that said nucleotide sequence does not encode the amino acid sequence at positions 232 to 723 of SEQ ID NO: 18;

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(g) a nucleotide sequence encoding a polypeptide comprising the complete amino acid sequence of a crystal protein contained in the *Bacillus thuringiensis* strain deposited at the International Depository Authority of Health Canada in Winnipeg under accession number IDAC010201-5;

(h) a nucleotide sequence encoding a crystal protein comprising the complete amino acid sequence in SEQ ID NO: 10;

(i) a nucleotide sequence comprising the sequence set forth in SEQ ID NO: 1;

(j) a nucleotide sequence comprising the sequence set forth in SEQ ID NO: 9;

(k) a nucleotide sequence encoding a crystal protein comprising the sequence set forth in SEQ ID NO: 11;

(l) a nucleotide sequence encoding a crystal protein having at least 94% identity with the complete amino acid sequence in SEQ ID NO: 2, with the proviso that said nucleotide sequence does not encode the amino acid sequence in SEQ ID NO: 18;

(m) a nucleotide sequence encoding a crystal protein having at least 97% identity with the complete amino acid sequence in SEQ ID NO: 8 with the proviso that said nucleotide sequence does not encode the amino acid sequence from position 232 to 723 of SEQ ID NO: 18;

(n) a nucleotide sequence encoding a crystal protein cytotoxic against at least one human cancer cell, said nucleotide sequence having at least 98% identity with the complete sequence set forth in SEQ ID NO: 9, with the proviso that said nucleotide sequence does not encode the amino acid sequence from position 232 to 723 of SEQ ID NO: 18;

(o) a nucleotide sequence completely complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m) and (n); and

(p) a nucleotide sequence which hybridizes under high stringency conditions to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m), (n) and (o).

Claim 3. (currently amended) An isolated polypeptide comprising a sequence having at least 97% identity with the complete amino acid sequence in SEQ ID NO: 8, with the proviso that said polypeptide is not constituted of the amino acid

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sequence as set forth at positions 232 to 723 of SEQ ID NO: 18, selected from the group consisting of:

- ~~(a) — an amino acid as set forth in SEQ ID NO: 2;~~
- ~~(b) — an amino acid sequence in SEQ ID NO: 8;~~
- ~~(c) — an amino acid sequence of a crystal protein contained in the *Bacillus thuringiensis* strain in the deposit at the International Depository Authority of Health Canada in Winnipeg under accession number IDAC010201-5;~~
- ~~(d) — a crystal protein comprising the amino acid sequence in SEQ ID NO: 10;~~
- ~~(e) — a crystal protein having at least 94% identity with the complete amino acid sequence in SEQ ID NO: 2, with the proviso that said crystal protein is not constituted of SEQ ID NO: 18;~~
- ~~(f) — a crystal protein having at least 97% identity with the complete amino acid sequence in SEQ ID NO: 8, with the proviso that said crystal protein is not constituted of the amino acid sequence at positions 232 to 723 of SEQ ID NO: 18;~~
- ~~(g) — a crystal protein cytotoxic against at least one human cancer cell and encoded by a nucleotide sequence having at least 98% identity with the complete sequence in SEQ ID NO: 9, with the proviso that said nucleotide sequence does encode the amino acid sequence at positions 232 to 723 of SEQ ID NO: 18.~~

Claim 4. (withdrawn) A recombinant vector comprising an isolated nucleotide sequence of claim 2.

Claim 5. (withdrawn) A recombinant host cell comprising the vector of claim 4.

Claim 6. (withdrawn) A method for making a recombinant vector comprising inserting an isolated nucleic acid molecule according claim 2 in a vector.

Claim 7. (withdrawn) A recombinant method for producing a cytotoxic polypeptide, comprising culturing said host cell of claim 5 under conditions such that said polypeptide is expressed and recovering said polypeptide.

Claim 8. (withdrawn) An isolated antibody that binds specifically to a polypeptide of claim 3.

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Claim 9. (withdrawn) A method of modulating the level of cry31Aa2 active protein in a cell comprising a modulation of the level or activity of the sequence SEQ ID NO: 8.

Claim 10. (withdrawn) A method of using a polypeptide of claim 3 for lysing a human cancer cell.

Claim 11. (withdrawn) The method as recited in claim 10 wherein the cells are selected from the group consisting of HELA, TCS, HL-60, Jurkat, and Hep-G2 cells.

Claim 12. (withdrawn) A method of testing the cytotoxicity of a polypeptide as defined in claim 3 against a candidate cancer cell comprising determining the EC50 of the polypeptide on the candidate cell, wherein the polypeptide is characterized as possessing cytotoxicity against the candidate cell if the EC50 of the polypeptide against the candidate cell is measurably lower than that against a normal T cell.

Claim 13. (withdrawn) A method for lysing a human cancer cell comprising applying a cytotoxic amount of a polypeptide of claim 3 on a human cancer cell.

Claim 14. (withdrawn) A method for obtaining a cytotoxic polypeptide comprising cleaving a polypeptide of claim 3 with a protease able to cleave between a residue R and a residue I.

Claim 15. (withdrawn) A method as in claim 14, where the protease is trypsin.

Claim 16. (new) An isolated polypeptide as recited in claim 3, wherein said polypeptide comprises an amino acid sequence as set forth in SEQ ID NO: 13.

Claim 17. (new) An isolated polypeptide as recited in claim 3, wherein said polypeptide comprises an amino acid sequence as set forth in SEQ ID NO: 15.

Claim 18. (new) An isolated polypeptide as recited in claim 3, wherein said polypeptide comprises an amino acid sequence as set forth in SEQ ID NO: 8.

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Claim 19. (new) An isolated polypeptide as recited in claim 3, wherein said polypeptide comprises an amino acid sequence as set forth in SEQ ID NO: 12.

Claim 20. (new) An isolated polypeptide as recited in claim 3, wherein said polypeptide comprises an amino acid sequence as set forth in SEQ ID NO: 14.

Claim 21. (new) An isolated polypeptide as recited in claim 3, wherein said polypeptide comprises an amino acid sequence as set forth in SEQ ID NO: 2.

Claim 22. (new) An isolated polypeptide as recited in claim 3, wherein said polypeptide comprises an amino acid sequence of a crystal protein contained in the *Bacillus thuringiensis* strain in the deposit at the International Depository Authority of Health Canada in Winnipeg under accession number IDAC010201-5.